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10/590,239	08/22/2006	Laurent Cloutot	0119010-00198	6801

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EXAMINER	
BAIG, ADNAN	

ART UNIT	PAPER NUMBER
4172	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,239	CLOUTOT ET AL.	
	Examiner	Art Unit	
	ADNAN BAIG	4172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/22/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 30-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Handelman (US 2002/0048067) in view of Shahar (US 2004/0179841).

Regarding Claim 30, Handelman discloses a method for combining a plurality of incoming signals to form a resulting time division multiplex signal (i.e., Referring to Fig. 5B, a plurality of incoming signals are combined with a resulting transmitted to a destination route at step 590, [0066]), a maximum number of periodic time-division channels for the incoming and resulting signal (i.e., the resulting signal that is sent to the server must have a maximum number or occupancy of channels or series, [0184] lines 10-13. The combined data rate "DRc" [0063] has a maximum range for transmitting the optical signals and can handle a capacity of upstream signal samples or number of channels), identifying an occupancy of the channels for the incoming signals ([0212] lines 4-8),

including a commonly occupied and unoccupied channel of the incoming signals (i.e., for the channels that occupy a wavelength band, the converting includes for occupancy includes dropping an upstream signal to a stream that is free or unoccupied, [0078]).

a time correspondence of the identified occupancy (i.e., each signal series has a corresponding time delay [0065], and reassigning of occupied channel content to an unoccupied channel, [0078]

Handelman does not expressly disclose the combining of the content in incoming signals to be collision free. However the preceding limitation is known in the art of communications. Shahar teaches a time division multiplex method where channels are combine to form a resulting signal in a collision free manner, (i.e., Referring to Fig. 21D the incoming signals or data/address inserted into the modulators 1084a-1084c generate a resulting optical signal using Time-division multiplexing [0002], preventing collision [0339]). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include the system of Handelman within the system of Shahar to avoid collision of a resulting time division multiplexing signal by identifying occupied channels in the network.

Regarding Claim 31, Handelman in view of Shahar discloses the method as claimed in claim 30, wherein by using the time correspondence of the occupied channel, the content of the occupied channel is branched from one of the incoming signals and temporally displaced until it corresponds temporally to the unoccupied channel.

Shahar further teaches that content from an occupied channel is branched temporally with a time delay to an unoccupied channel to form a resulting signal, [0236]. Referring to Fig. 2, Hendalman illustrates item 180 functioning as an add/drop module which temporally displaces branched content to an unoccupied channel, [0094] lines1-9.

Regarding Claim 32, Handelman in view of Shahar disclose the method as claimed in claim 30, wherein after the time displacement of a branched content, the branched content is inserted into one channel of the incoming signals and the incoming signals are optically coupled, (i.e., Handelman further teaches a star coupler, where after a time delay is used for displacement of branched content [0142], data is coupled to an optic cable to transmit the resulting signal to its destination route).

Regarding Claim 33, Handelman in view of Shahar disclose the method as claimed in claim 30, wherein the plurality of incoming signals includes a first incoming signal and second incoming signal, and

wherein the sum of a count of occupied channels of the first incoming signal and a count of occupied channels of the second incoming signal does not exceed the maximum number channels of the resulting signal, (i.e., Handelman further teaches a plurality of incoming signals ranging from 1 to an integer "n", where the sum of the combined occupied signals or combined data rate “DRc” does not exceed the maximum channels of the resulting signal, [0063].

Regarding Claim 34, Handelman in view of Shahar disclose the method as claimed in claim 30, further providing a total number of time-division multiplexed channels, the total number being a multiple of four, and

wherein a number of branches or a number of reinsertion is at least the total number divided by four and a number of time displacements is one more than quotient of the total number divided by four, (i.e., Referring to Fig. 2, Handelman illustrates a total number of channels can range from 1 to any integer "n", [0063] lines 4-8, where an integer "n" is capable of being a multiple of four. Handelman illustrates the term "node server" as referred to as a branch, [0109]. Referring to Fig. 1, Handelman illustrates a total number of four branches or nodes, where the numbers of branches in the Figure are equivalent to a total number "n" divided by four. Referring to Fig.2, Handelman further illustrates a number of time displacements can range from 1 to any integer "n" which falls under one more than the quotient of the total number divided by four).

Regarding Claim 35, Handelman in view of Shahar disclose the method as claimed in claim 30, wherein if a total count of occupied channels of the incoming signals exceeds the number of channels of the resulting signal, the occupied channel of one of the signals is diverted and combined to form a further time-division multiplex signal. (i.e., in regards to the applicants specification, if the total number of incoming occupied channel signals exceed the channels of the resulting signal, wavelength switching can be applied. Handelman further teaches a switching technique to combine an occupied

signal with another branch to form a further time-division multiplex signal, [0109-0110]. Referring to Fig.1, each end node or subset of channels is able to communicate with other nodes in the network to form a further time-division multiplex signal, [0113].

Regarding Claim 36, Handelman in view of Shahar disclose the method as claimed in claim 35, wherein during diversion of the occupied channel a granularity characteristic is modified such that the diverted channel and the further signal are combined with the same granularity characteristics. (i.e., In regards to applicants specification, granularity characteristics such as wavelength switching for a subset of channels will serve as a same granularity when combined with a new channel wavelength, [0115]).

Regarding Claim 37, Handelman in view of Shahar disclose the method as claimed in claim 35, wherein wavelength is selected as the modified granularity, (i.e., Handelman [0115]).

Regarding Claim 38, Handelman in view of Shahar disclose the method as claimed in claim wherein wavelength an identical number of branches, time displacements, reinsertions and optionally diversions is used for each incoming signal. (i.e., Handelman further teaches that the incoming signals are able to use the same features as disclosed in claim 30, using wavelength division multiplexing, [0062].

Regarding Claim 39, Handelman in view of Shahar disclose the method as claimed in claim 31, wherein for occupied and unoccupied channels the occupancy of channels of the incoming signals is identified before a channel is branched. (i.e., Handelman further teaches identifying the occupancy or un-branched channel for transmission without delay before an incoming signal is branched and fed into an add/drop module. The optical upstream converter unit detects or identifies upstream data to be transmitted optically where then branched data is sent to the add/drop module, [0090]. Referring to Fig. 2, the converter unit accepts incoming signals from ports 102 and upstream data is identified before the branched data is sent to add/drop module item 125, [0125-0126].

Regarding Claim 40, Handelman in view of Shahar disclose the method as claimed in claim 39, further comprises identifying a further occupancy of the channels before a further channel branching, (i.e., Handelman further teaches that a node server is able to communicate with a plurality of new nodes or subset of channels, [0112]. Each node or branch is able to identify a further occupancy of further "n" input signals. Referring to Fig. 2, the converter unit accepts incoming signals from ports 102 and upstream data is identified before the branched data is sent to add/drop module item 125, [0125-0126]).

Regarding Claim 41, Handelman and Shahar disclose the method as claimed in claim 39, wherein the occupancy is identified from information from a network manager, (i.e.,

(i.e., Referring to Fig.2, Handelman further illustrates an optical delay mechanism or network manager which identifies or senses the occupancy or branched content of incoming signals with time correspondence of time delays for a number "n" of incoming signals, [0139-0140]).

Regarding Claim 42, Handelman in view of Shahar disclose the method as claimed in claim 39, wherein the occupancy is identified from an extracted light element of one of the incoming signals being overlaid optically with a control pulse synchronized with the signal and the overlaid signal is output to an avalanche photodiode or a non-linear detection element that provides an output signal having information about the occupancy of a channel. (i.e., Shahar further teaches that behavior or occupancy of the incoming signals is obtained or extracted by light containing a control pulse, [0188-0189]. Shahar further teaches the signal is output to a detection unit or element, [0136]

Regarding Claim 43, Handelman in view of Shahar disclose the method as claimed in claim 42, wherein a bit rate of the control pulse is tailored to a bit rate of the signals and the control pulse is gradually subjected to a time delay, (i.e., Referring to Fig. 9B, Shahar further illustrates a control pulse subject to a time delay, [0177]).

Regarding Claim 44, Handelman in view of Shahar disclose the method as claimed in claim 39, wherein occupancy is identified by demultiplexing the incoming signals having a bandwidth at least half the bandwidth of the signals, (i.e., Shahar further teaches demultiplexing the resulting signal with half the bandwidth, [0181] lines 1-7, [0140]). Shahar further teaches that all output ports are demultiplexed, [0055]).

Regarding Claim 45, Handelman in view of Shahar disclose the method as claimed in claim 31, wherein phases of the incoming signals are synchronized before the first branching of a content of their channels, (i.e., Handelman further teaches synchronizing incoming time division multiplex signals during the selection of upstream signal samples, [0074]).

Regarding Claim 46, Handelman in view of Shahar disclose the method as claimed in claim 31, wherein a clock pulse of the branch and a time delay are regulated, (i.e., Handelman [0065]).

Regarding Claim 47, Handelman in view of Shahar disclose the method as claimed in claim 30, wherein during the combining of incoming signals a clock pulse synchronization is regulated, (i.e., Referring to Fig. 2, Handelman further teaches the

incoming signals in items 120 and 125 have synchronization regulated or controlled, [0131]).

Regarding Claim 48, Handelman discloses an arrangement for combining a plurality of incoming optical time-division multiplex signals to form a resulting time division multiplex signal (i.e., Referring to Fig. 5B, a plurality of incoming signals are combined with a resulting transmitted to a destination route at step 590, [0066]), a maximum number of periodic time-division multiplexed channels for the incoming and resulting signal (i.e., the resulting signal that is sent to the server must have a maximum number or occupancy of channels or series, [0184] lines 10-13. The combined data rate "DRc" [0063] has a maximum range for transmitting the optical signals and can handle a capacity of upstream signal samples or number of channels), identifying an occupancy of the channels for the incoming signals ([0212] lines 4-8), a controller [0085];

a detection unit identifying an occupancy of channels and channel time correspondence of the incoming signals, the detection unit operatively connected to the controller via a control signal, (i.e., Referring to Fig.2, item 165 serves as a detection unit where a delay mechanism senses or identifies branched and un-branched content. The branched or occupied content will contain a delayed signal which is selected from controller 115 and is therefore connected to the controller, [0139-0140]).

the occupancy including a commonly occupied channel of the incoming signals and a commonly unoccupied channel of the incoming signals, [0078].

a time delay element for the reciprocal time displacement of a content from the occupied channel in one of the incoming signals, the time delay element operatively connected to the controller, (i.e., Referring to Fig. 2, Handelman illustrates an optical delay mechanism connected to controller 115, [0140]).

and an optical coupler connected downstream from the time delay element to reassign the content to the unoccupied channel of the incoming signals, [0131].

Handelman does not expressly disclose the combining of the resulting signal to be collision free. However the preceding limitation is known in the art of communications. Shahar teaches a time division multiplex method where channels are combined to form a resulting signal in a collision free manner, (i.e., Referring to Fig. 21D the incoming signals or data/address inserted into the modulators 1084a-1084c generate a resulting optical signal using Time-division multiplexing [0002], preventing collision [0339]). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include the system of Hendelman within the system of Shahar to avoid collision of a resulting time division multiplexing signal by identifying occupied channels in the network.

Regarding Claim 49, Handelman in view of Shahar disclose the arrangement as claimed in claim 48, further comprising a drop module operative connected to the time delay element and to the controller, (i.e., Referring to Fig.2, Handelman further

illustrates an add/drop module connected to delay mechanism 165 and to controller 115, [0090] lines 18-20).

the controller activates the branching and sets a time delay, (i.e., Referring to Fig.2, Handelman further teaches the controller selects or sets the time delays [0140].

wherein the incoming signals have a plurality of occupied and a plurality of unoccupied channels, [0078].

wherein to branch a content of one of the occupied channels one of the plurality of incoming signals is fed into the drop module, (i.e., Referring to Fig.2, Handelman further teaches the branched content of incoming signals experience a time delay and are sent to drop module 170, [0090] lines 18-20).

Regarding Claim 50, Handelman in view of Shahar disclose the arrangement as claimed in claim 48, further comprising a network manager connected to the controller via a control signal, wherein the network manager identifies the occupancy of channels with time correspondence between or during incoming signals, (i.e., Referring to Fig.2, Handelman further illustrates an optical delay mechanism or network manager which identifies or senses the occupancy or branched content of incoming signals with time correspondence of time delays for a number "n" of incoming signals, [0139-0140]).

Regarding Claim 51, Handelman in view of Shahar disclose the arrangement as claimed in claim 48, further comprising: a drop module having an input and output, (i.e., Referring to Fig. 2, Handelman further teaches an add/drop module 170 having an input and output, [0090] lines 18-20).

and a further time delay element operatively connected to the output of the drop module, wherein one of the signals is fed to an input of the drop module, (Referring to Fig. 2, Handelman further illustrates a time delay element connected to the output of add/drop module for downstream communication and an input signal "DRt" is fed to the input of item 170).

Regarding Claim 52, Handelman in view of Shahar disclose The arrangement as claimed in claim 51, further comprises an insertion facility connected downstream from the further time delay element for reinsertion of a branched and time-delayed content of a channel into the original signal, (i.e., In regards to applicants specification an insertion facility is interpreted as combining two signals to result a combining signal, Referring to Fig. 16E, Shahar illustrates a combination of two signals where one of the signals 990B experiences a time delay and is reinserted into signal 990A to form combining signal 990C, [0233-0234]).

Regarding Claim 53, Handelman and Shahar disclose an arrangement wherein the controller has a counter for the occupied and unoccupied channels, (i.e., Handelman

further teaches controller 115 computes or counts a series of upstream signals to be combined, [0154]).

Regarding Claim 54, Handelman and Shahar disclose an arrangement wherein the controller has a unit to assign the occupied channel to the unoccupied channels, (i.e., Referring to Fig. 20C, Shahar further teaches a phase controller 1025a that arranges or assigns occupied and unoccupied channels, [0332]. Handelman further teaches the controller 115 determines the number of combined signal streams that are sent for transmission using occupancy identification techniques as stated in claim 48, [0128] lines 1-6).

Regarding Claim 55, Handelman and Shahar disclose an arrangement as claimed in claim 49, wherein if there is a collision risk in respect of the content a drop module is connected upstream from the add-drop module, (i.e., Referring to Fig. 2, Handelman discloses a drop module 180 connected upstream from the add-drop module, [0148]

Regarding Claim 56, Handelman and Shahar disclose an arrangement as claimed in claim 55, further comprises a wavelength converter or switch operatively connected to the output of the drop module such that a new wavelength is allocated to the channels of content with collision potential, (i.e., Handelman further teaches wavelength switching

applied in the network [0072], The combiner containing the output of the drop module is associated with the wavelength converter unit, [0086]).

Regarding Claim 57, Handelman and Shahar disclose the arrangement as claimed in claim 56, wherein the channels with the new wavelength are an input signal fed into a further connected arrangement, (i.e., Handelman further teaches that a node server is able to communicate with a plurality of new channel wavelengths "n" using wavelength division multiplexing, [0115].

the further arrangement combining a plurality of input signals to form a next resulting time-division multiplex signal, (i.e., Referring to Fig. 5B, a plurality of incoming signals are combined with a resulting transmitted to a destination route at step 590, [0066])

each signal having the same maximum number of periodic time-division multiplexed channels, the plurality of input signals includes the channels with the new wavelength, (i.e., the resulting signal that is sent to the server must have a maximum number or occupancy of channels or series, [0184] lines 10-13. The combined data rate "DRc" [0063] has a maximum range for transmitting the optical signals and can handle a capacity of upstream signal samples or number of channels)

the further arrangement comprising: a controller; [0085]
a detection unit identifying an occupancy of channels and channel time correspondence of the incoming signals, the detection unit operatively connected to the controller via a control signal, (i.e., Referring to Fig.2, item 165 serves as a detection unit where a delay

mechanism senses or identifies branched and un-branched content. The branched or occupied content will contain a delayed signal which is selected from controller 115 and is therefore connected to the controller, [0139-0140]).

the occupancy including a commonly occupied channel of the incoming signals and a commonly unoccupied channel of the incoming signals; [0078].

a time delay element for the reciprocal time displacement of a content from the occupied channel in one of the incoming signals, the time delay element operatively connected to the controller, (i.e., Referring to Fig. 2, Handelman illustrates an optical delay mechanism connected to controller 115, [0140]).

an optical coupler connected downstream from the time delay element to reassign the content to the unoccupied channel of the incoming signals, [0131].

and a drop module operative connected to the time delay element and to the controller, the controller activates the branching and sets a time delay, (i.e., Referring to Fig.2, Handelman further illustrates an add/drop module connected to delay mechanism 165 and controller 115, [0090] lines 18-20), Referring to Fig.2, Handelman further teaches the controller selects or sets the time delays [0140].

wherein the incoming signals have a plurality of occupied and a plurality of unoccupied channels, [0078].

wherein to branch a content of one of the occupied channels one of the plurality of incoming signals is fed into the drop module, (i.e., Referring to Fig.2, Handelman further

teaches the branched content of incoming signals experience a time delay and are sent to drop module 170, [0090] lines 18-20).

wherein combining into the resulting signal occurs in a collision-free manner, (i.e., Shahar teaches a time division multiplex method where channels are combined to form a resulting signal in a collision free manner, (i.e., Referring to Fig. 21D the incoming signals or data/address inserted into the modulators 1084a-1084c generate a resulting optical signal using Time-division multiplexing [0002], preventing collision [0339]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADNAN BAIG whose telephone number is (571) 270-7511. The examiner can normally be reached on Mon-Fri 7:30m-5:00pm eastern Every other Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis West can be reached on 571-272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ADNAN BAIG/
Examiner, Art Unit 4172
/Jean A Gelin/
Primary Examiner, Art Unit 2617
Tuesday, February 03, 2009